APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,779	03/14/2005	Ercan Ferit Gigi	NI 020858	1798

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EXAMINER
LENNOX, NATALIE

ART UNIT	PAPER NUMBER
2626	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/527,779	GIGI, ERCAN FERIT
	Examiner	Art Unit
	Natalie Lennox	2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>14 March 2005</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-14</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-14</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>14 March 2005</u> is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☒ All   b) ☐ Some *   c) ☐ None of:

       1. ☒ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____.

       3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>Jan. 12, 2007</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Drawings

1.   The drawings are objected to because the unlabeled rectangular boxes shown in the drawings should be provided with descriptive text labels. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Information Disclosure Statement

2.   The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other

information submitted for consideration by the Office, and MPEP § 609.04(a) states,

"the list may not be incorporated into the specification but must be submitted in a

separate paper." Therefore, unless the references have been cited by the examiner on

form PTO-892, they have not been considered.

3.   The information disclosure statement filed January 12, 2006 fails to comply with

37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance,

as it is presently understood by the individual designated in 37 CFR 1.56(c) most

knowledgeable about the content of the information, of each patent listed that is not in

the English language. It has been placed in the application file, but the information

referred to therein has not been considered.

Claim Rejections - 35 USC § 101

1.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2.   Claims 13-14 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter. Regarding claim 13, a synthesized speech

signal is claimed. A claimed signal per se does not fall within any of the statutory

categories because it is clearly not a process, machine, manufacture, or composition of

matter, it has no physical structure, and does not itself perform any useful, concrete or

tangible result.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claims 1, 7, and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated

by Lowry (US Patent 5,787,398).

As per claims 12, 1, and 11, Lowry teaches a computer system, method, and

computer program product of synthesizing of a speech signal, comprising:

- assigning of a first identifier to a first class of intervals of an original speech

signal and assigning of a second identifier to a second class of intervals of the original

speech signal (Col. 3, lines 53-56),

- windowing the original speech signal to provide a number of pitch bells (Col. 2,

lines 19-24),

- processing the pitch bells having the first identifier assigned thereto for

modifying a duration of the speech signal (Col. 2, lines 19-26, also Col. 3, lines 25-29),

and

- performing an overlap and add operation on the processed pitch bells (Col. 3,

lines 25-37).

As per claim 7, Lowry teaches the method of claim 1 whereby a raised cosine is

used for windowing of the speech signal (Col. 5, lines 61-63).

As per claim 13, Lowry teaches a synthesized speech signal being composed of pitch bells, which are overlapped and added, whereby only pitch bells of steady voiced or unvoiced intervals of an original speech signal have been processed in order to accomplish a duration modification of the original speech signal (see rejection for claim 1).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lowry (US Patent 5,787,398) in view of Gersho et al. (US 2001/0023396).

As per claim 2, Lowry teaches the method of claim 1, but does not specifically mention the first class of intervals being steady intervals.

However, Gersho et al. teach the first class of intervals being steady intervals ("steady state voiced" from Paragraph [0089], lines 5-9).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of the first class of intervals being steady intervals as taught by Gersho et al. for Lowry's method because although voiced speech is not a perfectly periodic signal, it displays strong periodic characteristics on

short segments which include a number of pitch periods (Gersho's paragraph [0059], lines 1-6).

As per claim 3, Lowry teaches the method of claim 1, but does not specifically mention a first code or a second code being used as the first identifier, the first code being indicative of an unvoiced interval and the second code being indicative of a voiced interval.

However, Gersho et al. teach a first code or a second code being used as the first identifier, the first code being indicative of an unvoiced interval and the second code being indicative of a voiced interval ("steady state voiced" from Gersho's paragraph [0089]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a first code or a second code being used as the first identifier, the first code being indicative of an unvoiced interval and the second code being indicative of a voiced interval as taught by Gersho et al. for Lowry's method because this way, a suitable type of coding scheme is used for each class (Gersho's paragraph [0089]).

As per claim 4, Lowry teaches the method of claim 1, but does not specifically mention the second class of intervals being dynamic intervals.

However, Gersho et al. teach the second class of intervals being dynamic intervals ("transition speech" from Gersho's paragraphs [0089] and [0055], lines 4-12).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of the second class of intervals being dynamic intervals as taught by Gersho et al. for Lowry's method because handling of transition segments, has shown to be particularly effective for high quality coding of speech (Gersho's paragraph [0055]).

As per claim 5, Lowry teaches the method of claim 1, but does not specifically mention whereby a third code, a fourth code, a fifth code or a sixth code is used as the second identifier, the third code being indicative of an unvoiced interval being essential for the intelligibility of the speech signal, the fourth code being indicative of a voiced interval being essential for the intelligibility of the speech signal, and the fifth code being indicative of an unvoiced interval not being essential for the intelligibility of the speech signal and the sixth code being indicative of a voiced interval not being essential for the intelligibility of the speech signal.

However, Gersho et al. teach whereby a third code, a fourth code, a fifth code or a sixth code is used as the second identifier, the third code being indicative of an unvoiced interval being essential for the intelligibility of the speech signal, the fourth code being indicative of a voiced interval being essential for the intelligibility of the speech signal, and the fifth code being indicative of an unvoiced interval not being essential for the intelligibility of the speech signal and the sixth code being indicative of a voiced interval not being essential for the intelligibility of the speech signal (Gersho's

paragraph [0090], stationary unvoiced speech segment represents the unvoiced interval being essential for the intelligibility of the speech signal.).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a third code, a fourth code, a fifth code or a sixth code is used as the second identifier, the third code being indicative of an unvoiced interval being essential for the intelligibility of the speech signal, the fourth code being indicative of a voiced interval being essential for the intelligibility of the speech signal, and the fifth code being indicative of an unvoiced interval not being essential for the intelligibility of the speech signal and the sixth code being indicative of a voiced interval not being essential for the intelligibility of the speech signal as taught by Gersho et al. for Lowry's method because this way, a suitable type of coding scheme is used for each class (Gersho's paragraph [0089]).

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lowry (US Patent 5,787,398) in view of Gersho et al. (US 2001/0023396) as applied to claim 5 above, and further in view of Nishiguchi et al. (US Patent 5,832,437).

As per claim 6, Lowry in view of Gersho et al. teach the method of claim 5, but do not specifically mention whereby pitch bells being assigned to the fifth or sixth code are deleted optionally.

However, Nishiguchi et al. teach pitch bells being assigned to the fifth or sixth code are deleted optionally (Col. 10, lines 34-42).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of pitch bells being assigned to the fifth or sixth code are deleted optionally as taught by Nishiguchi et al. for Lowry's method, as modified above, because Nishiguchi's method reduces the volume of processing operations by employing the multi-band excitation techniques, synthesis represents the most critical portion in the waveform analysis synthesis system (Col. 11, lines 50-57).

8.   Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lowry (US Patent 5,787,398) in view of Nishiguchi et al. (US Patent 5,832,437).

As per claim 8, Lowry teaches the method of claim 1, but does not specifically mention a sine window being used for windowing of steady, unvoiced intervals of the speech signal.

However, Nishiguchi et al. teach a sine window being used for windowing of steady, unvoiced intervals of the speech signal (Col. 3, lines 36-53).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a sine window being used for windowing of steady, unvoiced intervals of the speech signal as taught by Nishiguchi et al. for Lowry's method because Nishiguchi provides speech analysis/synthesis methods in which sine wave synthesis is employed for a voiced speech portion or in which the unvoiced speech portion is synthesized based upon noise signals. Also, his invention finds application in pitch conversion, speed conversion, regular speech synthesis, or noise suppression (Nishiguchi's Col. 11, line 62 to Col. 12, line 6).

As per claim 14, Lowry teaches the speech signal of claim 13, but does not specifically mention whereby one or more pitch bells belonging to a dynamic voice or unvoiced interval have been deleted prior to the overlap and add operation.

However, Nishiguchi et al. teach one or more pitch bells belonging to a dynamic voice or unvoiced interval have been deleted prior to the overlap and add operation (see rejection for claim 6).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of one or more pitch bells belonging to a dynamic voice or unvoiced interval have been deleted prior to the overlap and add operation as taught by Nishiguchi et al. for Lowry's method, as modified above, because Nishiguchi's method reduces the volume of processing operations by employing the multi-band excitation techniques, synthesis represents the most critical portion in the waveform analysis synthesis system (Col. 11, lines 50-57).

9.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lowry (US Patent 5,787,398) as applied to claim 1 above, and further in view of Singhal (US Patent 6,963,833).

As per claim 9, Lowry teaches the method of claim 1 but does not specifically mention further comprising randomizing the pitch bells of steady, unvoiced periods before performing the overlap and add operation.

However, Singhal teaches randomizing the pitch bells of steady, unvoiced periods before performing the overlap and add operation (Col. 14, lines 25-37).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of randomizing the pitch bells of steady, unvoiced periods before performing the overlap and add operation as taught by Singhal for Lowry's method because an unvoiced component of speech is generated from harmonics that are declared unvoiced, whereby spectral magnitudes of these harmonics are each allotted a random phase generated by a random phase generator to form a modified noise spectrum. The inverse transform of the modified spectrum corresponds to an unvoiced part of the speech (Singhal's Col. 6, lines 46-51).

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lowry (US Patent 5, 787,398) in view of Applicant's Admitted Prior Art (hereinafter, AAPA).

As per claim 10, Lowry teaches the method of claim 1, but does not specifically mention whereby the windowing is performed by means of a window positioned synchronously with a fundamental frequency of the speech signal.

However, AAPA teaches the windowing is performed by means of a window positioned synchronously with a fundamental frequency of the speech signal (AAPA's page 6 of applicant's disclosure, lines 1-3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of the windowing is performed by means of a window positioned synchronously with a fundamental frequency of the speech signal as taught by AAPA for Lowry's method because this windowing method is known

from prior art and used in PSOLA type methods (AAPA's page 6 of applicant's disclosure, line 3).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalie Lennox whose telephone number is (571) 270-1649. The examiner can normally be reached on Monday to Friday 9:30 am - 7 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571)272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NL   12/13/2007

RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER